

chain nodes :

7 8 9 10 12 14 21 22 23 27 28 29 30 39 40 41 42 45

ring nodes :

1 2 3 4 5 6 15 16 17 18 19 20 33 34 35 36 37 38

chain bonds :

5-12 6-7 7-8 7-28 9-10 12-27 14-17 21-22 21-23 28-30 29-30 37-41 38-39 39-40
39-45 41-42

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 15-16 15-20 16-17 17-18 18-19 19-20 33-34 33-38
34-35 35-36 36-37 37-38

exact/norm bonds :

5-12 7-8 7-28 9-10 12-27 21-22 21-23 28-30 29-30 37-41 39-40 39-45 41-42

exact bonds :

6-7 14-17 38-39

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 15-16 15-20 16-17 17-18 18-19 19-20 33-34 33-38
34-35 35-36 36-37 37-38

isolated ring systems :

containing 1 : 15 : 33 :

G2: Ak, H, [*1], [*2]

G3: OH, X, [*3]

Match level :

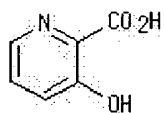
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS
12:CLASS 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:CLASS
22:CLASS 23:CLASS 27:CLASS 28:CLASS 29:Atom 30:CLASS 33:Atom 34:Atom 35:Atom
36:Atom 37:Atom 38:Atom 39:CLASS 40:CLASS 41:CLASS 42:CLASS 45:CLASS

fragments assigned reactant role:

containing 33

fragments assigned product role:

containing 1



IT 50617-47-5P

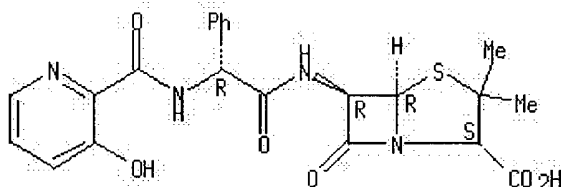
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); **PREP (Preparation)**

(prepn. and antibacterial activity of)

RN 50617-47-5 HCAPLUS

CN 4-Thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid, 6-[[[(3-hydroxy-2-pyridinyl)carbonyl]amino]phenylacetyl]amino]-3,3-dimethyl-7-oxo-, monopotassium salt, [2S-[2 α ,5 α ,6 β (S*)]]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



K

=> file careact

'CAREACT' IS NOT A VALID FILE NAME

SESSION CONTINUES IN FILE 'HCAPLUS'

Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files that are available. If you have requested multiple files, you can specify a corrected file name or you can enter "IGNORE" to continue accessing the remaining file names entered.

=> file casreact

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	99.80	415.89
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-11.90	-11.90

FILE 'CASREACT' ENTERED AT 21:06:57 ON 16 NOV 2004

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FILE CONTENT:1840 - 14 Nov 2004 VOL 141 ISS 20

*

* CASREACT now has more than 8 million reactions *

Some CASREACT records are derived from the ZIC/VINITI database (1974-1991) provided by InfoChem, INPI data prior to 1986, and Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>

L10 STRUCTURE UPLOADED

=> sl 10

SL IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s 110

SAMPLE SEARCH INITIATED 21:11:38 FILE 'CASREACT'

SCREENING COMPLETE - 65 REACTIONS TO VERIFY FROM 3 DOCUMENTS

100.0% DONE 65 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED VERIFICATIONS: 817 TO 1783
PROJECTED ANSWERS: 0 TO 0

L11 0 SEA SSS SAM L10 (0 REACTIONS)

=> s 110 full

THE ESTIMATED SEARCH COST FOR FILE 'CASREACT' IS 102.30 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

FULL SEARCH INITIATED 21:11:54 FILE 'CASREACT'

SCREENING COMPLETE - 862 REACTIONS TO VERIFY FROM 46 DOCUMENTS

100.0% DONE 862 VERIFIED 2 HIT RXNS 2 DOCS
SEARCH TIME: 00.00.01

L12 2 SEA SSS FUL L10 (2 REACTIONS)

=> d 112, ibib abs crd, 1-2

L12 ANSWER 1 OF 2 CASREACT COPYRIGHT 2004 ACS on STN

Full
Text

Chemical
References

ACCESSION NUMBER:

138:153003 CASREACT

TITLE:

Substituted pyridylamide ligands in
microwave-accelerated Mo(0)-catalysed allylic
alkylations

AUTHOR(S):

Belda, Oscar; Moberg, Christina

CORPORATE SOURCE:

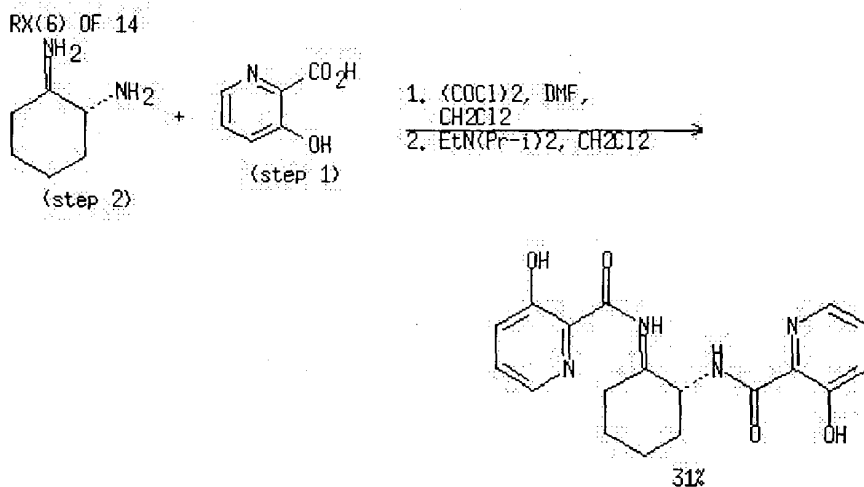
Department of Chemistry, Organic Chemistry, KTH,
Stockholm, 100 44, Swed.

SOURCE:

Synthesis (2002), (11), 1601-1606
CODEN: SYNTBF; ISSN: 0039-7881

PUBLISHER: Georg Thieme Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Novel 4- and 6-substituted bis-pyridylamides were prepd. by microwave accelerated nucleophilic substitution of the 4- and 6-halo substituted derivs. of the parent ligand (1R,2R)-1,2-bis(pyridine-2-carboxyamido)cyclohexane. The ligands were used in the asym. allylation of cinnamyl carbonate catalyzed by Mo(0) in which the 4-chloro- and 4-pyrrolidyl substituted ligand derivs. exhibited high regioselectivity (74:1 and 88:1, resp.) and enantioselectivity (96% ee), whereas 6-substituted ligands afforded no product under the same conditions.



NOTE: stereoselective
REFERENCE COUNT:

24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

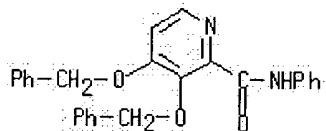
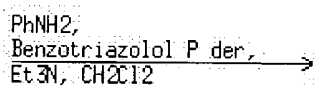
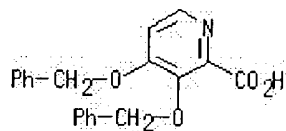
L12 ANSWER 2 OF 2 CASREACT COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 135:92524 CASREACT
TITLE: Novel synthetic approach to 2-(1'-hydroxyalkyl)- and 2-amido-3-hydroxypyridin-4-ones
AUTHOR(S): Piyamongkol, S.; Liu, Z. D.; Hider, R. C.
CORPORATE SOURCE: Department of Pharmacy, King's College London, London, SE1 9NN, UK
SOURCE: Tetrahedron (2001), 57(16), 3479-3486
CODEN: TETRAB; ISSN: 0040-4020
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Novel methods for the synthesis of high pFe³⁺ iron chelators, 3,4-dihydroxy-2-(hydroxymethyl)pyridinium salts and 2-(aminocarbonyl)-3,4-dihydroxypyridinium compds., were reported. The products are obtained, via N-oxide intermediates, from either maltol or ethyl maltol. Iron-chelating properties were evaluated for 1,4-dihydro-3-hydroxy-N,1,6-trimethyl-4-oxo-2-pyridinecarboxamide and 1,4-dihydro-3-hydroxy-N,6-dimethyl-4-oxo-2-pyridinecarboxamide.

RX(18) OF 130



HCl

REFERENCE COUNT:

18

THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=>

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 NEWS 3 JUL 12 BEILSTEIN enhanced with new display and select options,
 resulting in a closer connection to BABS
 NEWS 4 AUG 02 IFIPAT/IFIUDB/IFICDB reloaded with new search and display
 fields
 NEWS 5 AUG 02 Cplus and CA patent records enhanced with European and Japan
 Patent Office Classifications
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 (Version 7.01 for Windows) now available
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 status data from INPADOC
 NEWS 9 SEP 01 INPADOC: New family current-awareness alert (SDI) available
 NEWS 10 SEP 01 New pricing for the Save Answers for SciFinder Wizard within
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 NEWS 11 SEP 01 New display format, HITSTR, available in WPIDS/WPINDEX/WPIX
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NEWS EXPRESS OCTOBER 29 CURRENT WINDOWS VERSION IS V7.01A, CURRENT
 MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
 AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004
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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 11:40:21 ON 16 NOV 2004

=> file reg		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'REGISTRY' ENTERED AT 11:40:33 ON 16 NOV 2004

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STRUCTURE FILE UPDATES: 14 NOV 2004 HIGHEST RN 780728-63-4
 DICTIONARY FILE UPDATES: 14 NOV 2004 HIGHEST RN 780728-63-4

h eb c g cg b cg

eb

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file hcaplus		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.42	0.63

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FILE COVERS 1907 - 16 Nov 2004 VOL 141 ISS 21
 FILE LAST UPDATED: 15 Nov 2004 (20041115/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> s pathogen? {} plant?
      173051 PATHOGEN?
      920147 PLANT?
L1      252 PATHOGEN? (W) PLANT?

=> s l1 and disease?
      819173 DISEASE?
L2      132 L1 AND DISEASE?

=> s l2 and rice {} blast?
      78074 RICE
      463 RICES
      78091 RICE
            (RICE OR RICES)
      91389 BLAST?
      1398 RICE (W) BLAST?
L3      1 L2 AND RICE (W) BLAST?

=> s l3 and review/dt
```

1774705 REVIEW/DT

L4 1 L3 AND REVIEW/DT

=> d l4, ibib abs, 1

L4 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Cited References
--------------	---------------------

ACCESSION NUMBER: 2000:869402 HCAPLUS
DOCUMENT NUMBER: 134:175522
TITLE: Fungal pathogenicity-establishing infection
AUTHOR(S): Balhadere, Pascale V.; Talbot, Nicholas J.
CORPORATE SOURCE: School of Biological Sciences Washington Singer
Laboratories, University of Exeter, Exeter, EX4 4QG,
UK
SOURCE: Annual Plant Reviews (2000), 4, 1-25
CODEN: APLRFE; ISSN: 1460-1494
PUBLISHER: Sheffield Academic Press
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with 126 refs. regarding the early events in plant infection and the specific morphogenetic pathways that have evolved in fungi to breach the outer surfaces of the plant. Focus is made on the developmental biol. of the **rice blast** fungus, *Magnaporthe grisea*, an appressorium-forming cereal pathogen. The chronol. of plant infection of *M. grisea* is traced and the key genetic components so far identified and their known, or predicted, functions, are described.

REFERENCE COUNT: 126 THERE ARE 126 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d his

(FILE 'HOME' ENTERED AT 11:40:21 ON 16 NOV 2004)

FILE 'REGISTRY' ENTERED AT 11:40:33 ON 16 NOV 2004

FILE 'HCAPLUS' ENTERED AT 11:40:40 ON 16 NOV 2004

L1 252 S PATHOGEN? () PLANT?
L2 132 S L1 AND DISEASE?
L3 1 S L2 AND RICE () BLAST?
L4 1 S L3 AND REVIEW/DT

=> s l2 not l4

L5 131 L2 NOT L4

=> s l5 and cucumber {} anthracnose?

13596 CUCUMBER

3591 CUCUMBERS

14653 CUCUMBER

(CUCUMBER OR CUCUMBERS)

1065 ANTHRACNOSE?

62 CUCUMBER (W) ANTHRACNOSE?

L6 0 L5 AND CUCUMBER (W) ANTHRACNOSE?

=> s l2 and cucumber?

14657 CUCUMBER?

L7 4 L2 AND CUCUMBER?

=> s l7 and review/dt
 1774705 REVIEW/DT
 L8 0 L7 AND REVIEW/DT

=> d l7, ibib abs, i

L7 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text
 Links
 References

ACCESSION NUMBER: 2004:434452 HCAPLUS
 DOCUMENT NUMBER: 140:401712
 TITLE: In vivo study of Trichoderma-pathogen-plant interactions, using constitutive and inducible green fluorescent protein reporter systems
 AUTHOR(S): Lu, Zexun; Tombolini, Riccardo; Woo, Sheridan; Zeilinger, Susanne; Lorito, Matteo; Jansson, Janet K.
 CORPORATE SOURCE: Section for Natural Sciences, Soedertoern University College, Huddinge, 14189, Swed.
 SOURCE: Applied and Environmental Microbiology (2004), 70(5), 3073-3081
 CODEN: AEMIDF; ISSN: 0099-2240
 PUBLISHER: American Society for Microbiology
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Plant tissue colonization by Trichoderma atroviride plays a crit. role in the redn. of **diseases** caused by phytopathogenic fungi, but this process has not been thoroughly studied in situ. We monitored in situ interactions between gfp-tagged biocontrol strains of T. atroviride and soilborne plant pathogens that were grown in cocultures and on **cucumber** seeds by confocal scanning laser microscopy and fluorescence stereomicroscopy. Spores of T. atroviride adhered to Pythium ultimum mycelia in coculture expts. In mycoparasitic interactions of T. atroviride with P. ultimum or Rhizoctonia solani, the mycoparasitic hyphae grew alongside the pathogen mycelia, and this was followed by coiling and formation of specialized structures similar to hooks, appressoria, and papillae. The morphol. changes obsd. depended on the pathogen tested. Branching of T. atroviride mycelium appeared to be an active response to the presence of the pathogenic host. Mycoparasitism of P. ultimum by T. atroviride occurred on **cucumber** seed surfaces while the seeds were germinating. The interaction of these fungi on the **cucumber** seeds was similar to the interaction obsd. in coculture expts. Green fluorescent protein expression under the control of host-inducible promoters was also studied. The induction of specific Trichoderma genes was monitored visually in cocultures, on plant surfaces, and in soil in the presence of colloidal chitin or Rhizoctonia by confocal microscopy and fluorescence stereomicroscopy. These tools allowed initiation of the mycoparasitic gene expression cascade to be monitored in vivo.

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d his

(FILE 'HOME' ENTERED AT 11:40:21 ON 16 NOV 2004)

FILE 'REGISTRY' ENTERED AT 11:40:33 ON 16 NOV 2004

FILE 'HCAPLUS' ENTERED AT 11:40:40 ON 16 NOV 2004

L1 252 S PATHOGEN? () PLANT?
 L2 132 S L1 AND DISEASE?

L3 1 S L2 AND RICE () BLAST?
 L4 1 S L3 AND REVIEW/DT
 L5 131 S L2 NOT L4
 L6 0 S L5 AND CUCUMBER () ANTHRACNOSE?
 L7 4 S L2 AND CUCUMBER?
 L8 0 S L7 AND REVIEW/DT

=> d 17, ibib abs, 1-4

L7 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Cited References
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ACCESSION NUMBER: 2004:434452 HCAPLUS
 DOCUMENT NUMBER: 140:401712
 TITLE: In vivo study of Trichoderma-pathogen-plant interactions, using constitutive and inducible green fluorescent protein reporter systems
 AUTHOR(S): Lu, Zexun; Tombolini, Riccardo; Woo, Sheridan; Zeilinger, Susanne; Lorito, Matteo; Jansson, Janet K.
 CORPORATE SOURCE: Section for Natural Sciences, Soedertoern University College, Huddinge, 14189, Swed.
 SOURCE: Applied and Environmental Microbiology (2004), 70(5), 3073-3081
 CODEN: AEMIDE; ISSN: 0099-2240
 PUBLISHER: American Society for Microbiology
 DOCUMENT TYPE: Journal
 LANGUAGE: English

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REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Cited References
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ACCESSION NUMBER: 2002:858863 HCAPLUS
 DOCUMENT NUMBER: 138:103823
 TITLE: Production of anti-virus, viroid plants by genetic manipulations

AUTHOR(S): Ishida, Isao; Tukahara, Masayoshi; Yoshioka, Masaharu;
 Ogawa, Toshiya; Kakitani, Mokoto; Toguri, Toshihiro
 CORPORATE SOURCE: Pharmaceutical Division, Kirin Brewery Co Ltd, Tokyo,
 104-8288, Japan
 SOURCE: Pest Management Science (2002), 58(11), 1132-1136, 4
 plate
 CODEN: PMSCFC; ISSN: 1526-498X
 PUBLISHER: John Wiley & Sons Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Many **pathogenic plant** viruses are RNA viruses, which initiate prodn. of double-stranded RNA intermediates when they replicate in host plant cells. Introduction of double-stranded RNA-specific RNases such as the Schizosaccharomyces pombe derived pac I protein and animal cell derived interferon-induced 2',5'-oligoadenylate synthetase (2-5Aase)/RNase L (RNase L) system into various plants may make plants resistant to various pathogenic viruses and viroids. We have demonstrated that pac I and 2-5Aase/RNase L transgenic tobacco plants are resistant to various viruses including tobacco mosaic virus, **cucumber** mosaic virus and potato virus Y. In addn., pac I transgenic potato plants are resistant to potato spindle tuber viroid. Using Agrobacterium-mediated transformation, we have established a transformation system for chrysanthemum plants and have recently developed pac I transgenic chrysanthemum (Dendranthema grandiflora cv Reagan) resistant to chrysanthemum stunt viroid and have grown them in isolated fields for an evaluation of their effects.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 1979:198746 HCAPLUS
 DOCUMENT NUMBER: 90:198746
 TITLE: Effect of myomycin on plant bacterial **diseases**
 AUTHOR(S): Yoneyama, Katsuyoshi; Koike, Masaru; Sekido, Shigeko;
 Ko, Keido; Misato, Tomomasa
 CORPORATE SOURCE: Inst. Phys. Chem. Res., Wako, Japan
 SOURCE: Nippon Noyaku Gakkaishi (1978), 3(4), 359-64
 CODEN: NNGADV; ISSN: 0385-1559
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Min. growth-inhibitory concns. of myomycin (I) [50926-58-4] toward 7 species of plant pathogenic bacteria were 2-100 µg/mL when tested by the agar diln. and turbidometric methods, whereas I gave small inhibitory zones toward these bacteria even at 100 µg/mL by the agar diffusion method. I markedly protected Chinese cabbage from soft rot and **cucumber** plants from angular leaf spot at 45 and 75 µg/mL, resp., but had a lesser effect on bacterial leaf blight of rice plants. I was more effective than streptomycin for the control of the angular leaf spot.

L7 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 1971:2994 HCAPLUS
 DOCUMENT NUMBER: 74:2994
 TITLE: Benomyl applied to soil for the control of some pathogens of tomato and **cucumber**
 AUTHOR(S): Ebben, Marion H.; Last, Frederick T.
 CORPORATE SOURCE: Glasshouse Crops Res. Inst., Littlehampton, UK
 SOURCE: Proc. Brit. Insectic. Fungic. Conf., 5th (1970),

Meeting Date 1969, Volume 2, 315-21

CODEN: 17XDAO

DOCUMENT TYPE:

Conference

LANGUAGE:

English

AB Benomyl applied at 4 rates as a soil drench to tomato plants potted after roots were artificially inoculated with *Verticillium albo-atrum*, controlled foliage wilt symptoms. Slight marginal chlorosis occurred on leaves of plants treated with 0.4 or 0.2 g active ingredient (a.i.)/plant, and yields averaged 79-83% of untreated healthy controls as compared with 25% from untreated inoculated plants. At rates of 0.1 and 0.05 g a.i./plant, leaf chlorosis was negligible and yields were 89% and 92%, resp., that of healthy controls. **Cucumbers** were planted into plots infested or uninfested with *Phomopsis sclerotiods* (the casual pathogen of black root rot). When treated with drenches of benomyl at 0.1 g a.i./plant at planting and 7 weeks later, they resisted attack by powdery mildew, *Sphaerotheca fuliginea*. Untreated plants in the same plots became heavily infected, and yields were decreased. Root rot was largely checked when benomyl was applied to plants in infested plots, yields being 91% of benomyl-treated plants in uninfested plots. Where no benomyl was applied, yields considerably decreased by powdery mildew alone decreased even more in plots where root rotting also occurred.

=> d his

(FILE 'HOME' ENTERED AT 11:40:21 ON 16 NOV 2004)

FILE 'REGISTRY' ENTERED AT 11:40:33 ON 16 NOV 2004

FILE 'HCAPLUS' ENTERED AT 11:40:40 ON 16 NOV 2004

L1 252 S PATHOGEN? () PLANT?
 L2 132 S L1 AND DISEASE?
 L3 1 S L2 AND RICE () BLAST?
 L4 1 S L3 AND REVIEW/DT
 L5 131 S L2 NOT L4
 L6 0 S L5 AND CUCUMBER () ANTHRACNOSE?
 L7 4 S L2 AND CUCUMBER?
 L8 0 S L7 AND REVIEW/DT

=> s l5 and mildew {} cucumber

7273 MILDEW
 258 MILDEWS
 7366 MILDEW
 (MILDEW OR MILDEWS)

13596 CUCUMBER
 3591 CUCUMBERS
 14653 CUCUMBER
 (CUCUMBER OR CUCUMBERS)

54 MILDEW (W) CUCUMBER

L9 0 L5 AND MILDEW (W) CUCUMBER

=> s l5 and mildew

7273 MILDEW
 258 MILDEWS
 7366 MILDEW
 (MILDEW OR MILDEWS)

L10 5 L5 AND MILDEW

=> s l10 and review/dt

1774705 REVIEW/DT

h

eb c

g cg b

cg

eb

L11 1 L10 AND REVIEW/DT

=> d l11, ibib abs, 1

L11 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN

Full
Text

ACCESSION NUMBER: 2003:542659 HCAPLUS
DOCUMENT NUMBER: 139:377841
TITLE: Establishing compatibility between plants and obligate
biotrophic pathogens
AUTHOR(S): Panstruga, Ralph
CORPORATE SOURCE: Max-Planck-Institut fur Zuchtforschung, Department
of Plant-Microbe Interactions, Cologne, 50829, Germany
SOURCE: Current Opinion in Plant Biology (2003), 6(4), 320-326
CODEN: COPBFZ; ISSN: 1369-5266
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review. The apparent under-representation of the term 'plant **disease** susceptibility' as opposed to plant **disease** resistance' in the current scientific literature might indicate that 'compatibility' has not gained the same appreciation as 'resistance' in the past. However, these seemingly contrary phenomena are intimately linked, and progress in understanding one process inherently contributes to our comprehension of the other. Recent progress in analyzing plant-biotroph compatibility includes the mol. isolation and functional characterization of haustorium-specific cDNAs that encode presumptive hexose- and amino-acid-transporter proteins for proton-driven nutrient uptake. Accumulating evidence from cytol., pharmacol., phytopathol. and mol. studies indicates that pathogens mediate the suppression of host defenses in a range of plant-biotroph interactions. Arabidopsis thaliana mutants that are resistant to powdery or downy **mildew** but that do not exhibit constitutively activated defense could be affected in host-compatibility factors.

REFERENCE COUNT: 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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(FILE 'HOME' ENTERED AT 11:40:21 ON 16 NOV 2004)

FILE 'REGISTRY' ENTERED AT 11:40:33 ON 16 NOV 2004

FILE 'HCAPLUS' ENTERED AT 11:40:40 ON 16 NOV 2004

L1 252 S PATHOGEN? () PLANT?
L2 132 S L1 AND DISEASE?
L3 1 S L2 AND RICE () BLAST?
L4 1 S L3 AND REVIEW/DT
L5 131 S L2 NOT L4
L6 0 S L5 AND CUCUMBER () ANTHRACNOSE?
L7 4 S L2 AND CUCUMBER?
L8 0 S L7 AND REVIEW/DT
L9 0 S L5 AND MILDEW () CUCUMBER
L10 5 S L5 AND MILDEW
L11 1 S L10 AND REVIEW/DT

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 L5 131 S L2 NOT L4
 L6 0 S L5 AND CUCUMBER () ANTHRACNOSE?
 L7 4 S L2 AND CUCUMBER?
 L8 0 S L7 AND REVIEW/DT

=> d l7, ibib abs, 1-4.

L7 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2004:434452 HCAPLUS
 DOCUMENT NUMBER: 140:401712
 TITLE: In vivo study of *Trichoderma-pathogen-plant* interactions, using constitutive and inducible green fluorescent protein reporter systems
 AUTHOR(S): Lu, Zexun; Tombolini, Riccardo; Woo, Sheridan; Zeilinger, Susanne; Lorito, Matteo; Jansson, Janet K.
 CORPORATE SOURCE: Section for Natural Sciences, Soedertoern University College, Huddinge, 14189, Swed.
 SOURCE: Applied and Environmental Microbiology (2004), 70(5), 3073-3081
 CODEN: AEMIDF; ISSN: 0099-2240
 PUBLISHER: American Society for Microbiology
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Plant tissue colonization by *Trichoderma atroviride* plays a crit. role in the redn. of **diseases** caused by phytopathogenic fungi, but this process has not been thoroughly studied in situ. We monitored in situ interactions between gfp-tagged biocontrol strains of *T. atroviride* and soilborne plant pathogens that were grown in cocultures and on **cucumber** seeds by confocal scanning laser microscopy and fluorescence stereomicroscopy. Spores of *T. atroviride* adhered to *Pythium ultimum* mycelia in coculture expts. In mycoparasitic interactions of *T. atroviride* with *P. ultimum* or *Rhizoctonia solani*, the mycoparasitic hyphae grew alongside the pathogen mycelia, and this was followed by coiling and formation of specialized structures similar to hooks, appressoria, and papillae. The morphol. changes obsd. depended on the pathogen tested. Branching of *T. atroviride* mycelium appeared to be an active response to the presence of the pathogenic host. Mycoparasitism of *P. ultimum* by *T. atroviride* occurred on **cucumber** seed surfaces while the seeds were germinating. The interaction of these fungi on the **cucumber** seeds was similar to the interaction obsd. in coculture expts. Green fluorescent protein expression under the control of host-inducible promoters was also studied. The induction of specific *Trichoderma* genes was monitored visually in cocultures, on plant surfaces, and in soil in the presence of colloidal chitin or *Rhizoctonia* by confocal microscopy and fluorescence stereomicroscopy. These tools allowed initiation of the mycoparasitic gene expression cascade to be monitored in vivo.

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 2002:858863 HCAPLUS
 DOCUMENT NUMBER: 138:103823
 TITLE: Production of anti-virus, viroid plants by genetic manipulations
 AUTHOR(S): Ishida, Isao; Tukahara, Masayoshi; Yoshioka, Masaharu; Ogawa, Toshiya; Kakitani, Mokoto; Toguri, Toshihiro
 CORPORATE SOURCE: Pharmaceutical Division, Kirin Brewery Co Ltd, Tokyo, 104-8288, Japan
 SOURCE: Pest Management Science (2002), 58(11), 1132-1136, 4 plate
 CODEN: PMSCF; ISSN: 1526-498X
 PUBLISHER: John Wiley & Sons Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Many **pathogenic plant** viruses are RNA viruses, which initiate prodn. of double-stranded RNA intermediates when they replicate in host plant cells. Introduction of double-stranded RNA-specific RNases such as the Schizosaccharomyces pombe derived pac I protein and animal cell derived interferon-induced 2',5'-oligoadenylate synthetase (2-5Aase)/RNase L (RNase L) system into various plants may make plants resistant to various pathogenic viruses and viroids. We have demonstrated that pac I and 2-5Aase/RNase L transgenic tobacco plants are resistant to various viruses including tobacco mosaic virus, **cucumber** mosaic virus and potato virus Y. In addn., pac I transgenic potato plants are resistant to potato spindle tuber viroid. Using Agrobacterium-mediated transformation, we have established a transformation system for chrysanthemum plants and have recently developed pac I transgenic chrysanthemum (Dendranthema grandiflora cv Reagan) resistant to chrysanthemum stunt viroid and have grown them in isolated fields for an evaluation of their effects.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 1979:198746 HCAPLUS
 DOCUMENT NUMBER: 90:198746
 TITLE: Effect of myomycin on plant bacterial **diseases**
 AUTHOR(S): Yoneyama, Katsuyoshi; Koike, Masaru; Sekido, Shigeko; Ko, Keido; Misato, Tomomasa
 CORPORATE SOURCE: Inst. Phys. Chem. Res., Wako, Japan
 SOURCE: Nippon Noyaku Gakkaishi (1978), 3(4), 359-64
 CODEN: NNGADV; ISSN: 0385-1559
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Min. growth-inhibitory concns. of myomycin (I) [50926-58-4] toward 7 species of plant pathogenic bacteria were 2-100 µg/mL when tested by the agar diln. and turbidometric methods, whereas I gave small inhibitory zones toward these bacteria even at 100 µg/mL by the agar diffusion method. I markedly protected Chinese cabbage from soft rot and **cucumber** plants from angular leaf spot at 45 and 75 µg/mL, resp., but had a lesser effect on bacterial leaf blight of rice plants. I was more effective than streptomycin for the control of the angular leaf spot.

L7 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	References
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ACCESSION NUMBER: 1971:2994 HCAPLUS
DOCUMENT NUMBER: 74:2994
TITLE: Benomyl applied to soil for the control of some pathogens of tomato and **cucumber**
AUTHOR(S): Ebben, Marion H.; Last, Frederick T.
CORPORATE SOURCE: Glasshouse Crops Res. Inst., Littlehampton, UK
SOURCE: Proc. Brit. Insectic. Fungic. Conf., 5th (1970), Meeting Date 1969, Volume 2, 315-21
CODEN: 17XDAO
DOCUMENT TYPE: Conference
LANGUAGE: English

AB Benomyl applied at 4 rates as a soil drench to tomato plants potted after roots were artificially inoculated with *Verticillium albo-atrum*, controlled foliage wilt symptoms. Slight marginal chlorosis occurred on leaves of plants treated with 0.4 or 0.2 g active ingredient (a.i.)/plant, and yields averaged 79-83% of untreated healthy controls as compared with 25% from untreated inoculated plants. At rates of 0.1 and 0.05 g a.i./plant, leaf chlorosis was negligible and yields were 89% and 92%, resp., that of healthy controls. **Cucumbers** were planted into plots infested or uninfested with *Phomopsis sclerotiodes* (the casual pathogen of black root rot). When treated with drenches of benomyl at 0.1 g a.i./plant at planting and 7 weeks later, they resisted attack by powdery mildew, *Sphaerotheca fuliginea*. Untreated plants in the same plots became heavily infected, and yields were decreased. Root rot was largely checked when benomyl was applied to plants in infested plots, yields being 91% of benomyl-treated plants in uninfested plots. Where no benomyl was applied, yields considerably decreased by powdery mildew alone decreased even more in plots where root rotting also occurred.

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L5 131 S L2 NOT L4
L6 0 S L5 AND CUCUMBER () ANTHRACNOSE?
L7 4 S L2 AND CUCUMBER?
L8 0 S L7 AND REVIEW/DT

=> s l5 and mildew {} cucumber

7273 MILDEW

258 MILDEWS

7366 MILDEW

(MILDEW OR MILDEWS)

13596 CUCUMBER

3591 CUCUMBERS

14653 CUCUMBER

(CUCUMBER OR CUCUMBERS)

54 MILDEW (W) CUCUMBER

L9 0 L5 AND MILDEW (W) CUCUMBER

=> s 15 and mildew
 7273 MILDEW
 258 MILDEWS
 7366 MILDEW
 (MILDEW OR MILDEWS)

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 1774705 REVIEW/DT

L11 1 L10 AND REVIEW/DT

=> d 111, ibib abs, 1

L11 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Cited References
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ACCESSION NUMBER:	2003:542659 HCAPLUS
DOCUMENT NUMBER:	139:377841
TITLE:	Establishing compatibility between plants and obligate biotrophic pathogens
AUTHOR(S):	Panstruga, Ralph
CORPORATE SOURCE:	Max-Planck-Institut fur Zuchtforschung, Department of Plant-Microbe Interactions, Cologne, 50829, Germany
SOURCE:	Current Opinion in Plant Biology (2003), 6(4), 320-326 CODEN: COPBFZ; ISSN: 1369-5266
PUBLISHER:	Elsevier Science Ltd.
DOCUMENT TYPE:	Journal; General Review
LANGUAGE:	English

AB A review. The apparent under-representation of the term 'plant **disease** susceptibility' as opposed to plant **disease** resistance' in the current scientific literature might indicate that 'compatibility' has not gained the same appreciation as 'resistance' in the past. However, these seemingly contrary phenomena are intimately linked, and progress in understanding one process inherently contributes to our comprehension of the other. Recent progress in analyzing plant-biotroph compatibility includes the mol. isolation and functional characterization of haustorium-specific cDNAs that encode presumptive hexose- and amino-acid-transporter proteins for proton-driven nutrient uptake. Accumulating evidence from cytol., pharmacol., phytopathol. and mol. studies indicates that pathogens mediate the suppression of host defenses in a range of plant-biotroph interactions. Arabidopsis thaliana mutants that are resistant to powdery or downy **mildew** but that do not exhibit constitutively activated defense could be affected in host-compatibility factors.

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 L8 0 S L7 AND REVIEW/DT
 L9 0 S L5 AND MILDEW () CUCUMBER
 L10 5 S L5 AND MILDEW
 L11 1 S L10 AND REVIEW/DT

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279 DEUTEROMYCE?

819173 DISEASE?

L12 0 DEUTEROMYCE? (W) DISEASE?

=> s deuteromyce?

L13 279 DEUTEROMYCE?

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1774705 REVIEW/DT

L14 8 L13 AND REVIEW/DT

=> d l14, ibib abs, 1-8

L14 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 2004:712124 HCAPLUS
 DOCUMENT NUMBER: 141:292232
 TITLE: Elemental sulfur as an induced antifungal substance in plant defense
 AUTHOR(S): Cooper, Richard M.; Williams, Jane S.
 CORPORATE SOURCE: Department of Biology and Biochemistry, University of Bath, Bath, BA2 7AY, UK
 SOURCE: Journal of Experimental Botany (2004), 55(404), 1947-1953
 CODEN: JEBOA6; ISSN: 0022-0957
 PUBLISHER: Oxford University Press
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: English

AB A review. Elemental sulfur (S0) is the only inorg. phytoalexin and the only phytoalexin produced by so many different taxa. S0 (detected by GC-MS as 32S8) is produced in representative species of Sterculiaceae (cocoa), Solanaceae (tomato, tobacco), Malvaceae (cotton), and Leguminosae (French bean) in response to xylem-invading fungal and bacterial pathogens. Prodn. was more rapid and intensive in disease-resistant genotypes. Gene expression for S0 prodn. may be xylem-specific as S0 was not present in leaves of six species undergoing hypersensitivity to *Pseudomonas syringae*. Anomalously, high constitutive S0 levels occurred in leaves of *Arabidopsis* and *Brassica oleracea*. S0 was highly toxic (ED50 1-3 µg ml⁻¹) to many fungal pathogens representing Ascomycetes, Basidiomycetes, and **Deuteromycetes**, but not to an oomycete, *Phytophthora*, or to bacteria. Levels in cocoa and tomato xylem and *Arabidopsis* leaves were potentially inhibitory, but in other interactions were below theor. toxic concns. However, S0 accumulation is highly localized, suggesting that the element is produced in sufficient amts., at the right time and place to be effective. SEM-EDX revealed S in tomato and cocoa xylem walls, xylem parenchyma, and vascular gels and tyloses, all sites appropriate to counter vascular pathogenic *Verticillium dahliae*. Transient increases in sulfate, glutathione and cysteine occurred in tomato xylem. The sulfate may reflect the over-expression of sulfate

transporters, but the thiols might be possible precursors. Anal. of differential gene expression should reveal what may be a novel biosynthetic pathway of S0 formation in eukaryotes.

REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2003:861482 HCAPLUS
DOCUMENT NUMBER: 140:177907
TITLE: Fungi associated with Esca disease of grapevine in Germany
AUTHOR(S): Fischer, M.; Kassemeyer, H.-H.
CORPORATE SOURCE: Staatliches Weinbauinstitut Freiburg, Freiburg, Germany
SOURCE: Vitis (2003), 42(3), 109-116
CODEN: VITIAY; ISSN: 0042-7500
PUBLISHER: Institut fuer Rebenzuechtung Geilweilerhof
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review. Esca disease of grapevine is gaining increasing importance in Central European wine-growing countries. Several fungi, all of which are wood-inhabiting, were found to be assocd. with the disease. The taxa thought to act as main causal agents are the basidiomycete, *Fomitiporia mediterranea*, and, less frequently, the **deuteromycetes**, *Phaeomoniella chlamydospora* and *Phaeoacremonium aleophilum*. In addn., the species *Eutypa lata*, *Phomopsis viticola*, *Botryosphaeria obtusa*, and *Cylindrocarpum destructans* were isolated from Esca-affected vines. These species have been described in a standardized style and information is provided on taxonomy, cultured mycelium, microscopical characters, nuclear behavior, as well as restriction and sequence data of ribosomal DNA.

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 1999:492557 HCAPLUS
DOCUMENT NUMBER: 132:20307
TITLE: Characterization and application of chitin deacetylase from a **deuteromycete**, *Colletotrichum lindemuthianum*
AUTHOR(S): Tokuyasu, Ken
CORPORATE SOURCE: National Food Research Institute, Tsukuba, 305-8642, Japan
SOURCE: Kichin, Kitosan Kenkyu (1999), 5(2), 106-107
CODEN: KKKEFB; ISSN: 1340-9778
PUBLISHER: Nippon Kichin, Kitosan Gakkai
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: Japanese

AB A review with 4 refs. We established a novel deacetylation method of chitinous compds. using a chitin deacetylase from *Colletotrichum lindemuthianum* (ATCC56676). This enzymic method can be applied for the prepn. of chitosan oligomers and partially deacetylated chitin oligomers. We also used the enzyme as a tool for glycotecnol. for the prodn. of N-deacetylated chitin derivs. Furthermore, we have cloned the gene and expressed it in *Escherichia coli* cells for the purpose of solving the problems of low prodn. of the enzyme and difficulties in handling the plant-pathogenic fungus.

L14 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

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Text

References

ACCESSION NUMBER: 1999:447403 HCAPLUS
 DOCUMENT NUMBER: 132:63169
 TITLE: New strategy for utilization of amino sugar resources.
 Application of chitin deacetylase
 AUTHOR(S): Tokuyasu, Ken; Hayashi, Kiyoshi; Mori, Yutaka
 CORPORATE SOURCE: Natl. Food Res. Inst., Tsukuba, 305-8642, Japan
 SOURCE: Journal of Applied Glycoscience (1999), 46(2), 227-232
 CODEN: JAGLFX; ISSN: 1344-7882
 PUBLISHER: Japanese Society of Applied Glycoscience
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: Japanese

AB A review with 23 refs. Herein we propose a new strategy for utilizing amino sugar resources that involves the enzymic removal of N-acetyl groups from the amino sugar structures instead of hydrolysis of the sugar chains. We chose chitin deacetylase from a **Deuteromycete**, *Colletotrichum lindemuthianum*, as a tool for enzymic deacetylation of amino sugars. We have purified the enzyme from a culture filtrate to electrophoretic homogeneity (944-fold with a recovery of 4.05%). The optimum temp. of the enzyme was 60°, and the optimum pH was 11.5-12.0 when glycol chitin was used as substrate. The enzyme retained 96% of its activity in the presence of 100 mM sodium acetate. The enzyme was active toward chitin oligomers whose d.p. are more than two, and toward partially N-deacetylated water-sol. chitin. The enzyme could convert (GlcNAc)3-6 into fully deacetylated corresponding chitosan oligomers. Conversely, (GlcNAc)_n was partially deacetylated into 2-acetamid-O-4-O-(2-amino-2-deoxy-β-D-glucopyranosyl)-2-deoxy-D-glucose [GlcNGlcNAc]. The enzymic deacetylation method has advantageous characteristics over chem. methods: (1) It never causes unexpected side reactions; (2) It is highly reproducible; (3) Unique compds. such as GlcNGlcNAc can be produced. These basic data on characterization of the enzyme will give us important information for its utilization in glycotechnol.

L14 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

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Text

References

ACCESSION NUMBER: 1998:522320 HCAPLUS
 DOCUMENT NUMBER: 129:272695
 TITLE: Secondary metabolites of the fungus *Trichoderma viride* and its brown mutant M-108
 AUTHOR(S): Pavlovicova, Renata
 CORPORATE SOURCE: Department of Biochemistry and Microbiology, Faculty of Chemical Technology, Slovak University of Technology, Bratislava, SK-81237, Slovakia
 SOURCE: Biologia (Bratislava) (1998), 53(3), 267-275
 CODEN: BLOAAO; ISSN: 0006-3088
 PUBLISHER: Slovak Academy of Sciences
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: English

AB A review with 46 refs. The **deuteromycetid** species *Trichoderma viride* produces secondary metabolites with various structures belonging to the resp. group on the basis of classification of fungal metabolites. Using UV-irradn., a series of color mutants of *Trichoderma viride* were prepd. from the parental strain. From the aspect of prodn. of secondary metabolites, a brown mutant designated M-108 is interesting because it is capable of producing several color compds. Two secondary metabolites produced by this brown mutant have been identified by their structures of anthraquinone character. They are formed by a polyketide pathway by

condensation of starter acetyl units with extending malonyl units. Secondary metabolites as final products of secondary metab. are noted for specific functions in the producing microorganisms. The formation of secondary metabolites depends on several factors and culture conditions. Some of these aspects are described in this paper.

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text Citations

ACCESSION NUMBER: 1996:126472 HCAPLUS
DOCUMENT NUMBER: 124:170065
TITLE: Photoinduced conidiation in *Trichoderma viride*
AUTHOR(S): Betina, V.
CORPORATE SOURCE: Dep. Microbiol., Biochem. Biol., Slovak Technical University, Bratislava, 812 37, Slovakia
SOURCE: Folia Microbiologica (Prague) (1995), 40(3), 219-24
CODEN: FOMIAZ; ISSN: 0015-5632
PUBLISHER: Academia
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with 21 refs. on some physiol., biochem., and genetic aspects of the title subject. *Trichoderma viride* is a **deuteromycete** in which conidiation is photo-inducible. Conidiation results when colonies grow in the day-night regime or when colonies grown in the dark are exposed to short pulses of near UV or blue light. Conidiation was induced by light pulses at intervals of 8, 16, 24, 48 or 72 h. Several membrane-damaging agents, DNA-intercalating drugs, and inhibitors of RNA or protein synthesis prevent photo-conidiation. A hypothetical scheme of photo-induced conidiation, based on the results with metabolic inhibitors, is presented. A sudden increase of intracellular ATP was obsd. as an immediate photo-response. The ATP level is dose-dependent, with a max. at 1.2 klx. Drugs interfering with various signalling pathways were tested in an attempt to analyze the signal pathways whereby light pulses induce conidiation. Non-conidiating and color mutants have been obtained and used in complementation studied by means of heterokaryosis and protoplast fusion. In a color mutant with brown conidia, conidiation is accompanied by high prodn. and excretion of anthraquinone metabolites.

L14 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text Citations

ACCESSION NUMBER: 1995:423977 HCAPLUS
DOCUMENT NUMBER: 122:180894
TITLE: Phenylpyrroles, nature and IPM as guidance
AUTHOR(S): Van Der Maarel, H.
CORPORATE SOURCE: Business Unit Seed Treatment, Ciba Plant Protection, Basel, Switz.
SOURCE: Agro-Food-Industry Hi-Tech (1994), 5(1), 25-7
CODEN: AIHTEI; ISSN: 1120-6012
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with 14 refs. on phenylpyrroles as a new class of non-systemic fungicides, which are closely related to the natural antimycotic pyrrolnitrin. The mode of action of the phenylpyrroles may be related to membrane dependent transport processes, a mechanism which has not been described before for any fungicide. They are being developed for seed treatment use, an IPM compatible approach, for both cereal and non-cereal crops. The phenylpyrroles provide a high-level, broad spectrum of

activity at low rates against a wide range of seed- and soil-borne diseases caused by Ascomycetes, **Deuteromycetes** and Basidiomycetes. Fenpiclonil has been marketed since 1988, and fludioxonil received its 1st registration in France in July, 1993.

L14 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Reference
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ACCESSION NUMBER: 1992:147560 HCAPLUS
DOCUMENT NUMBER: 116:147560
TITLE: The fungal cell wall and its involvement in the pathogenic process in insect hosts
AUTHOR(S): Boucias, D. G.; Pendland, J. C.
CORPORATE SOURCE: IFAS, Univ. Florida, Gainesville, FL, 32611-0711, USA
SOURCE: NATO ASI Series, Series H: Cell Biology (1991), 53(Fungal Cell Wall Immune Response), 303-16
CODEN: NASBE4; ISSN: 1010-8793
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with 28 refs. on the in vivo development of a "typical" insect pathogenic **deuteromycete**. It is important to realize that the fungal-insect interactions are as diverse as those found among vertebrate fungi. Emphasis will be placed on the compn. of the fungal surfaces and with the interplay between the fungal cells and the host cell recognition mechanisms.

=> s ascomycotina? {} disease?
97 ASCOMYCOTINA?
819173 DISEASE?

L15 0 ASCOMYCOTINA? (W) DISEASE?

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L16 97 ASCOMYCOTINA?

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1774705 REVIEW/DT
L17 12 L16 AND REVIEW/DT

=> d l17, ibib abs, 1-12

L17 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Reference
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ACCESSION NUMBER: 2004:168944 HCAPLUS
DOCUMENT NUMBER: 140:371513
TITLE: Advanced in the study on secondary metabolites from marine **ascomycotina**
AUTHOR(S): Jiang, Guangce; Lin, Yongcheng; Yao, Ruhua; Vrijmoed, L. L. P.
CORPORATE SOURCE: Department of Bioengineering, South China Technology University, Guangzhou, 510641, Peop. Rep. China
SOURCE: Zhongguo Kangshengsu Zazhi (2002), 27(12), 763-767
CODEN: ZKZAEY; ISSN: 1001-8689
PUBLISHER: Zhongguo Kangshengsu Zazhishe
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: Chinese

AB A review focused on advanced in the study on secondary metabolites from marine **ascomycotina** with emphasis on the secondary metabolites from marine **ascomycotina** and the biol. activities of the secondary metabolites.

L17 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2003:669472 HCAPLUS
 DOCUMENT NUMBER: 140:160317
 TITLE: The full-length phylogenetic tree from 1551 ribosomal sequences of chitinous fungi, Fungi
 AUTHOR(S): Tehler, Anders; Little, Damon P.; Farris, James S.
 CORPORATE SOURCE: Sektionen foer kryptogambotanik, Naturhistoriska riksmuseet, Stockholm, S-10405, Swed.
 SOURCE: Mycological Research (2003), 107(8), 901-916
 CODEN: MYCRER; ISSN: 0953-7562
 PUBLISHER: Cambridge University Press
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: English

AB A review. A data set with 1551 fungal sequences of the small subunit rRNA has been analyzed phylogenetically. Four animal sequences were used to root the tree. The parsimony ratchet algorithm in combination with tree fusion was used to find most parsimonious trees and the parsimony jackknifing method was used to establish support frequencies. The full-length consensus tree, of the most parsimonious trees, is published and jackknife frequencies above 50% are plotted on the consensus tree at supported nodes. Until recently attempts to find the most parsimonious trees for large data sets were impractical, given current computational limitations. The parsimony ratchet in combination with tree fusion was found to be a very efficient method of rapid parsimony anal. of this large data set. Parsimony jackknifing is a very fast and efficient method for establishing group support. The results show that the Glomeromycota are the sister group to a monophyletic Dikaryomycota. The majority of the species in the Glomeromycota/Dikaryomycota group have a symbiotic lifestyle - a possible synapomorphy for a group Symbiomycota'. This would suggest that symbiosis between fungi and green plants evolved prior to the colonization of land by plants and not as a result of the colonization process. The Basidiomycotina and the **Ascomycotina** are both supported as monophyletic. The Urediniomycetes is the sister group to the rest of the Basidiomycotina successively followed in a grade by Ustilaginomycetes, Tremellomycetes, Dacrymycetales, Ceratobasidiales and Homobasidiomycetes each supported as monophyletic except the Homobasidiomycetes which are left unsupported. The ascomycete node begins with a polytomy consisting of the Pneumocystidomycetes, Schizosaccharomycetes, unsupported group with the Taphrinomycetes and Neolectales, and finally an unnamed, monophyletic and supported group including the Saccharomycetes and Euscomycetes. Within the Euscomycetes the inoperculate euscomycetes (Inoperculata) are supported as monophyletic excluding the Orbiliomycetes which are included in an unsupported operculate, pezizalean sister group together with Helvellaceae, Morchellaceae, Tuberaceae and others. Geoglossum is the sister group to the rest of the inoperculate euscomycetes. The Sordariomycetes, Dothideomycetes, Chaetothyriomycetes and Eurotiomycetes are each highly supported as monophyletic. The Leotiomycetes and the Lecanoromycetes both appear in the consensus of the most parsimonious trees but neither taxon receives any jackknife support.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2003:168321 HCAPLUS
 DOCUMENT NUMBER: 138:299614

TITLE: Distribution, structure and function of fungal nitric oxide reductase P450nor--recent advances
 AUTHOR(S): Zhang, Li; Kudo, Takashi; Takaya, Naoki; Shoun, Hirofumi
 CORPORATE SOURCE: Institute of Applied Biochemistry, University of Tsukuba, Tsukuba, Ibaraki, 305-8572, Japan
 SOURCE: International Congress Series (2002), 1233(Oxygen and Life), 197-202
 CODEN: EXMDA4; ISSN: 0531-5131
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: English

AB A review. Cytochrome P 450nor is a unique cytochrome P 450, which plays a key role in fungal denitrification. P 450nor is a nitric oxide (NO) reductase (Nor) found in eukaryotic microorganisms, which reduces NO to nitrous oxide (N2O) by directly accepting electrons from NADH or NADPH. Unlike other P 450s, P 450nor has no monooxygenase activity although it belongs to the P 450 super family (CYP55A). Several P 450nor genes have been cloned from the subdivision **ascomycotina** of fungi and the basidiomycetous yeast, indicating a wide distribution of P 450nor across the subdivisions of fungi. The crystal structure of P 450nor showed that this protein has a wider open cavity than other P 450s, suggesting the possibility of direct access of NAD(P)H from the distal pocket, but not from the proximal site. Considering the different catalytic cycle of P 450nor from that of P 450 monooxygenases, important amino acids and clusters, which effect proton and electron delivery to the heme were investigated to explore its reaction mechanism and function. In this paper, the authors review the current advances in P 450nor studies. The binding specificities of substrates NADH and NADPH to P 450nor are also discussed.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 4 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 2002:510081 HCAPLUS
 DOCUMENT NUMBER: 137:106151
 TITLE: Fungal siderophores: structure and function
 AUTHOR(S): Dave, B. P.; Dube, H. C.
 CORPORATE SOURCE: Department of Life Sciences, Bhavnagar University, Bhavnagar, Gujarat, 364 002, India
 SOURCE: Frontiers in Microbial Biotechnology and Plant Pathology (2002), 1-8. Editor(s): Manoharachary, C. Scientific Publishers (India): Jodhpur, India.
 CODEN: 69CUYT; ISBN: 81-7233-291-2
 DOCUMENT TYPE: Conference; **General Review**
 LANGUAGE: English

AB A review. Fungal siderophores are ferric specific and are produced under iron limiting conditions. Fungi belonging to Zygomycotina, **Ascomycotina** and Deuteromycotina produce 4 types of siderophores viz., hydroxamates, ferrichromes, fusarinines, coprogens, carboxylates. Siderophores act as iron chelators ecol. determinants, iron storage compds. and scavenge transition metals during wood decompn. This paper reviews the types, structure and functions of fungal siderophores.

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 5 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2002:330145 HCAPLUS
 DOCUMENT NUMBER: 137:307301
 TITLE: Etiological studies on the resinous stem canker of *Chamaecyparis obtusa* and the fungi relating to symptom development
 AUTHOR(S): Suto, Y.
 CORPORATE SOURCE: Japan
 SOURCE: Nippon Rin Gakkaishi (2000), 82(4), 397-408
 CODEN: NIRKAA; ISSN: 0021-485X
 PUBLISHER: Nippon Ringakkai
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: Japanese

AB A review. The published studies on the fungi relating to symptom development of the resinous stem canker of *Chamaecyparis obtusa* were reviewed and discussed. Three species of Discomycetes, **Ascomycotina**, *Cistella japonica*, *Pezicula livida*, and *Sarea resinae* were frequently isolated from the lesions. After inoculation with *C. japonica*, the stem of *C. obtusa* exuded abundant resin for a long period, and the cambial tissue was necrosed to sink the stem, forming lesions similar to the natural lesions. In addn., the inoculated fungus was reisolated from the lesions. Thus, Koch's postulates were satisfied and *C. japonica* was proved to be the causal agent of the disease. The resinous lesion, which is one of the characteristic symptoms of the disease, did not develop after inoculation with *P. livida*. After inoculation with *S. resinae*, pathogenicity was hardly recognized, and a resinicolous characteristic of the fungus was obsd. From the results of these studies, I conclude that the studies on the disease should be conducted assuming that *C. japonica* is a pathogen which also infects hinoki-asunaro (*Thujopsis dolabrata hondae*), and the disease is induced by several environmental factors, which have been suggested to be the causal agents.

L17 ANSWER 6 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2001:870995 HCAPLUS
 DOCUMENT NUMBER: 136:163768
 TITLE: Molecular organization and construction of the fungal cell wall
 AUTHOR(S): De Nobel, Hans; Sietsma, J. Hans; Van Den Ende, Herman; Klis, Frans M.
 CORPORATE SOURCE: Swammerdam Institute for Life Sciences, University of Amsterdam, Amsterdam, 1018 WV, Neth.
 SOURCE: Mycota (2001), Volume 8, 181-200. Editor(s): Howard, R. J.; Gow, N. A. R. Springer: Berlin, Germany.
 CODEN: 63BMA2
 DOCUMENT TYPE: Conference; **General Review**
 LANGUAGE: English

AB A review on the recent developments in the mol. organization and construction of the fungal cell wall. The relevance of the budding yeast *Saccharomyces cerevisiae* wall to other fungi, such as the mycelial species of the **Ascomycotina**, is discussed. The proteins involved in hyphal aggregation or anastomosis or involved in recognition of sexual partners or host cells are described. The yeast and hyphal mode of growth, maturation of the cell wall, compensation mechanisms of cell wall are also discussed.

REFERENCE COUNT: 213 THERE ARE 213 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L17 ANSWER 7 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	References
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ACCESSION NUMBER: 2000:350025 HCAPLUS
 DOCUMENT NUMBER: 134:55510
 TITLE: Multivariate analysis of biotransformations for a more effective strain selection (intelligent screening)
 AUTHOR(S): Abraham, Wolf-Rainer
 CORPORATE SOURCE: GBF - National Research Center for Biotechnology, Chemical Microbiology, Braunschweig, D-38124, Germany
 SOURCE: Bioorganic Chemistry (1999), 121-126. Editor(s): Diederichsen, Ulf. Wiley-VCH Verlag GmbH: Weinheim, Germany.
 CODEN: 68ZQAX
 DOCUMENT TYPE: Conference; **General Review**
 LANGUAGE: English

AB A review with 9 refs. Thirteen different substrates, mainly mono- and sesquiterpenes, with 100 strains (60 fungi and 40 bacteria) were tested and the Rf value of the products were detd. These data were analyzed further using multivariate statistical anal. A principal component anal. using the biotransformation products resulted in the identification of five groups of microorganisms corresponding almost exactly to the large phylogenetic clades. The anal. of these groups revealed that the taxonomic position of a strain is mirrored in its ability to catalyze certain biotransformations, i.e., that the phylogeny of the strains is correlated with its biotransformation potential. In these groups, fungi and bacteria can be discerned, in the course of which Basidiomycotina, **Ascomycotina** and Zygomycotina of the fungi formed discernable clusters. The Deuteromycotina (Fungi imperfecti) were only barely recognizable from the **Ascomycotina** which is not surprising because it is assumed that up to 80% of this group belong to **Ascomycotina**. Within the bacteria, Gram-pos. and Gram-neg. bacteria were recognizable. A further grouping could not be found with statistical significance, probably due to the fact that the data-set contained only 40 bacterial strains, which is far too little with respect to the large diversity of these organisms.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 8 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	References
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ACCESSION NUMBER: 1996:3484 HCAPLUS
 DOCUMENT NUMBER: 124:50254
 TITLE: Secondary metabolites and systematic arrangement within the Xylariaceae
 AUTHOR(S): Whalley, A. J. S.; Edwards, R. L.
 CORPORATE SOURCE: School Biomolecular Sciences, Liverpool John Moores University, Liverpool, L3 3AF, UK
 SOURCE: Canadian Journal of Botany (1995), 73(Suppl. 1, Sect. E-H, Fifth International Mycological Congress, Sect. E-H, 1994), S802-S810
 CODEN: CJBOAW; ISSN: 0008-4026
 PUBLISHER: National Research Council of Canada
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: English

AB A review with 65 refs. The Xylariaceae is a large family (Xylariales, **Ascomycotina**) of 36 or more genera. Secondary metabolites produced by representatives from at least one third of these genera have now been isolated and identified. The major compds., which are produced in static

culture, can be grouped as dihydroisocoumarins, punctaporonins, cytochalasins, butyrolactones and succinic acid derivs. The distribution of these and other chems. identified has been used in conjunction with traditional taxonomic characters in an attempt to develop a better understanding of natural relationships within the family. Chem. data obtained to date indicates that there are at least two major divisions within the family. It also provides addnl. evidence in support of a no. of intergeneric assocns. Individual species can often be recognized on the basis of exclusive metabolite profiles. The significance of these data and how they relate to current taxonomic views about the Xylariaceae is critically reviewed.

L17 ANSWER 9 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 1995:971016 HCAPLUS
DOCUMENT NUMBER: 124:4555
TITLE: Substitution and supplementary addition of secondary products in the evolution of lichenized **Ascomycotina**
AUTHOR(S): Poelt, Josef; Leuckert, Christian
CORPORATE SOURCE: Institut fur Botanik, Karl-Franzens-Universitat, Graz, A-8010, Austria
SOURCE: Bibliotheca Lichenologica (1993), 53(Phytochemistry and Chemotaxonomy of Lichenized Ascomycetes), 201-15
CODEN: BLICD3
PUBLISHER: Borntraeger
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review and discussion with 66 refs. Substitution and supplementary addn. of secondary products are important in the evolution of lichenized Ascomycetes; this view is demonstrated by many examples. Probably, there are relations between the formation of either crystd., epicellular and amorphous, intralaminar compds. Substitution and supplementary addn. can be very differently interpreted in taxonomy. As single characters to define genera they are overvalued.

L17 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 1995:881073 HCAPLUS
DOCUMENT NUMBER: 123:280354
TITLE: Discovery, biosynthesis, and mechanism of action of the zaragozic acids: potent inhibitors of squalene synthase
AUTHOR(S): Bergstrom, James D.; Dufresne, Claude; Bills, Gerald F.; Nallin-Omstead, Mary; Byrne, Kevin
CORPORATE SOURCE: Merck Research Laboratories, Rahway, NJ, 07065-0900, USA
SOURCE: Annual Review of Microbiology (1995), 49, 607-39
CODEN: ARMIAS; ISSN: 0066-4227
PUBLISHER: Annual Reviews
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with 80 refs. The zaragozic acids (ZAs), a family of fungal metabolites contg. a novel 4,6,7-trihydroxy-2,8-dioxobicyclo[3.2.1]octane-3,4,5-tricarboxylic acid core, were discovered independently by two sep. groups screening natural product sources to discover inhibitors of squalene synthase. These compds. all contain the same core but differ in their 1-alkyl and their 6-acyl side chains. Prodn. of the ZAs is distributed over an extensive taxonomic range of **Ascomycotina** or their

anamorphic states. The zaragozic acids are very potent inhibitors of squalene synthase that inhibit cholesterol synthesis and lower plasma cholesterol levels in primates. They also inhibit fungal ergosterol synthesis and are potent fungicidal compds. The biosynthesis of the zaragozic acids appears to proceed through alkyl citrate intermediates, and new members of the family have been produced through directed biosynthesis. These potent natural product based inhibitors of squalene synthase have potential to be developed either as cholesterol lowering agents and/or as antifungal agents.

L17 ANSWER 11 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full
Text

ACCESSION NUMBER: 1993:187380 HCAPLUS
DOCUMENT NUMBER: 118:187380
TITLE: Ecology, metabolite production, and substrate utilization in endophytic fungi
AUTHOR(S): Petrini, Orlando; Sieber, Thomas N.; Toti, Luigi; Viret, Olivier
CORPORATE SOURCE: Microbiol. Inst., Swiss Fed. Inst. Technol., Zurich, CH-8092, Switz.
SOURCE: Natural Toxins (1992), 1(3), 185-96
CODEN: NATOEE; ISSN: 1056-9014
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with 102 refs. Endophytic fungi are a taxonomically and ecol. heterogeneous group of organisms, mainly belonging to the **Ascomycotina** and Deuteromycotina. The isolation methods affect the species compn. of the endophyte assemblage in a given host. The no. of endophyte taxa isolated from a host species is usually large; however, only few, normally host-specific species or strains are dominant. Endophyte assemblages are specific at the host species level, but species compn. and frequencies are significantly affected by site-specific conditions. Moreover, the relative importance and no. of endophytic species vary among individuals within sites. In some cases, each individual could be considered a sep. ecosystem. In general, however, 40 individuals with 30-40 sampling units/organ and individual should be enough to detect 80% of taxa present in a given host at one site. Endophytes usually produce the enzymes necessary for the colonization of plant tissues. Substrate utilization studies and isoenzyme anal. have demonstrated that most endophytes are able to utilize most plant cell components. The prodn. of growth-promoting factors and of metabolites useful in the pharmaceutical and agricultural industry is widespread among endophytic fungi. The usefulness of endophytes in agricultural and pharmaceutical research is briefly discussed.

L17 ANSWER 12 OF 12 HCAPLUS COPYRIGHT 2004 ACS on STN

Full
Text

ACCESSION NUMBER: 1991:651745 HCAPLUS
DOCUMENT NUMBER: 115:251745
TITLE: Chemical evolution in the order Peltigerales: triterpenoids
AUTHOR(S): Galloway, D. J.
CORPORATE SOURCE: Dep. Bot., Nat. Hist. Mus., London, SW7 5BD, UK
SOURCE: Symbiosis (1991), 11(2-3), 327-44
CODEN: SYMBER; ISSN: 0334-5114
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English
AB A review with 85 refs. The order Peltigerales in **Ascomycotina** consists

of 5 families and 16 genera. It is presumed to be of great antiquity as evidence by a very wide diversity of lichenicolous fungi coevolved with the major lichen-forming genera, by the great diversity of secondary metabolites found in the order, and by global distribution patterns. Both primary (lipids and proteins) and secondary metabolites may have taxonomic utility in the Peltigerales in addn. to their presumed biol. functions. Triterpenoids which are widespread in certain genera in the order are discussed as an example of a group of compds. that may have implications for the detection of evolutionary relationships in this group of lichen-forming fungi.

=> s basidiomycetes? () disease

2115 BASIDIOMYCETES?
720806 DISEASE
199270 DISEASES
813954 DISEASE
(DISEASE OR DISEASES)

L18 0 BASIDIOMYCETES? (W) DISEASE

=> s basidiomycete?

L19 4019 BASIDIOMYCETE?

=> s l19 and review/dt

1774705 REVIEW/DT

L20 227 L19 AND REVIEW/DT

=> s l20 and disease?

819173 DISEASE?

L21 10 L20 AND DISEASE?

=> d 21, ibib abs, 1-10

10 ANSWERS ARE AVAILABLE. SPECIFIED ANSWER NUMBER EXCEEDS ANSWER SET SIZE

The answer numbers requested are not in the answer set.

ENTER ANSWER NUMBER OR RANGE (1):G

NUMBERS IN RANGE MUST BE GREATER THAN ZERO.

An answer number must be a positive number.

ENTER ANSWER NUMBER OR RANGE (1):G

NUMBERS IN RANGE MUST BE GREATER THAN ZERO.

An answer number must be a positive number.

ENTER ANSWER NUMBER OR RANGE (1):end

=> d l21, ibib abs, 1-10

L21 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Cited References
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ACCESSION NUMBER: 2004:712124 HCAPLUS

DOCUMENT NUMBER: 141:292232

TITLE: Elemental sulfur as an induced antifungal substance in plant defense

AUTHOR(S): Cooper, Richard M.; Williams, Jane S.

CORPORATE SOURCE: Department of Biology and Biochemistry, University of Bath, Bath, BA2 7AY, UK

SOURCE: Journal of Experimental Botany (2004), 55(404), 1947-1953

CODEN: JEBOA6; ISSN: 0022-0957

PUBLISHER: Oxford University Press

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review. Elemental sulfur (S0) is the only inorg. phytoalexin and the only phytoalexin produced by so many different taxa. S0 (detected by GC-MS as 32S8) is produced in representative species of Sterculiaceae (cocoa), Solanaceae (tomato, tobacco), Malvaceae (cotton), and Leguminosae (French bean) in response to xylem-invading fungal and bacterial pathogens. Prodn. was more rapid and intensive in **disease**-resistant genotypes. Gene expression for S0 prodn. may be xylem-specific as S0 was not present in leaves of six species undergoing hypersensitivity to *Pseudomonas syringae*. Anomalous, high constitutive S0 levels occurred in leaves of *Arabidopsis* and *Brassica oleracea*. S0 was highly toxic (ED50 1-3 µg ml⁻¹) to many fungal pathogens representing Ascomycetes, **Basidiomycetes**, and Deuteromycetes, but not to an oomycete, *Phytophthora*, or to bacteria. Levels in cocoa and tomato xylem and *Arabidopsis* leaves were potentially inhibitory, but in other interactions were below theor. toxic concns. However, S0 accumulation is highly localized, suggesting that the element is produced in sufficient amts., at the right time and place to be effective. SEM-EDX revealed S in tomato and cocoa xylem walls, xylem parenchyma, and vascular gels and tyloses, all sites appropriate to counter vascular pathogenic *Verticillium dahliae*. Transient increases in sulfate, glutathione and cysteine occurred in tomato xylem. The sulfate may reflect the over-expression of sulfate transporters, but the thiols might be possible precursors. Anal. of differential gene expression should reveal what may be a novel biosynthetic pathway of S0 formation in eukaryotes.

REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2004:692449 HCAPLUS
 TITLE: The *Ustilago maydis*-maize interaction
 AUTHOR(S): Garcia-Pedrajas, Maria D.; Klosterman, Steven J.; Andrews, David L.; Gold, Scott E.
 CORPORATE SOURCE: Department of Plant Pathology, University of Georgia, Athens, GA, 30602-7274, USA
 SOURCE: Annual Plant Reviews (2004), 11(Plant-Pathogen Interactions), 166-201
 CODEN: APLRFE; ISSN: 1460-1494
 PUBLISHER: Blackwell Publishing Ltd.
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: English

AB A review discusses the biol. of *Ustilago maydis*, employing the life and **disease** cycle as a guide to describe the various topics of study. A few aspects of the host's biol. in response to the pathogen and how this relates to **disease** control are also discussed. A brief note on future directions of research on this model **basidiomycete** plant pathogen is included.

REFERENCE COUNT: 134 THERE ARE 134 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2003:916515 HCAPLUS
 DOCUMENT NUMBER: 140:387562
 TITLE: The biodiversity of microbial cytochromes P 450
 AUTHOR(S): Kelly, Steven L.; Lamb, David C.; Jackson, Colin J.; Warrilow, Andrew G. S.; Kelly, Diane E.

CORPORATE SOURCE: Wolfson Laboratory of P450 Biodiversity, Institute of Biological Sciences, University of Wales, Aberystwyth, Wales, UK

SOURCE: Advances in Microbial Physiology (2003), 47, 131-186
CODEN: AMIPB2; ISSN: 0065-2911

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal; **General Review**

LANGUAGE: English

AB A review. The cytochrome P 450 (CYP) superfamily of genes and proteins are well known for their involvement in pharmacol. and toxicol., but also increasingly for their importance and diversity in microbes. The extent of diversity has only recently become apparent with the emergence of data from whole genome sequencing projects and the coming years will reveal even more information on the diversity in microbial eukaryotes. This review seeks to describe the historical development of these studies and to highlight the importance of the genes and proteins. CYPs are deeply involved in the development of strategies for deterrence and attraction as well as detoxification. As such, there is intense interest in pathways of secondary metab. that include CYPs in oxidative tailoring of antibiotics, sometimes influencing potency as bioactive compds. Further to this is interest in CYPs in metab. of xenobiotics for use as carbon sources for microbial growth and as biotransformation agents or in bioremediation. CYPs are also current and potential drug targets; compds. inhibiting CYP are antifungal and anti-protozoan agents, and potentially similar compds. may be useful against some bacterial **diseases** such as tuberculosis. Of note is the diversity of CYP requirements within an organism, ranging from Escherichia coli that has no CYPs as in many bacteria, to Mycobacterium smegmatis that has 40 representing 1 % of coding genes. The **basidiomycete** fungus Phanerochaete chrysosporium surprised all when it was found to contain a hundred or more CYPs. The functional genomic investigation of these orphan CYPs is a major challenge for the future.

REFERENCE COUNT: 162 THERE ARE 162 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L21 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN



ACCESSION NUMBER: 2003:861482 HCAPLUS

DOCUMENT NUMBER: 140:177907

TITLE: Fungi associated with Esca **disease** of grapevine in Germany

AUTHOR(S): Fischer, M.; Kassemeyer, H.-H.

CORPORATE SOURCE: Staatliches Weinbauinstitut Freiburg, Freiburg, Germany

SOURCE: Vitis (2003), 42(3), 109-116
CODEN: VITIAY; ISSN: 0042-7500

PUBLISHER: Institut fuer Rebenzuechtung Geilweilerhof

DOCUMENT TYPE: Journal; **General Review**

LANGUAGE: English

AB A review. Esca **disease** of grapevine is gaining increasing importance in Central European wine-growing countries. Several fungi, all of which are wood-inhabiting, were found to be assocd. with the **disease**. The taxa thought to act as main causal agents are the **basidiomycete**, Fomitiporia mediterranea, and, less frequently, the deuteromycetes, Phaeomoniella chlamydospora and Phaeoacremonium aleophilum. In addn., the species Eutypa lata, Phomopsis viticola, Botryosphaeria obtusa, and Cylindrocarpum destructans were isolated from Esca-affected vines. These species have been described in a standardized style and information is provided on taxonomy, cultured mycelium, microscopical characters, nuclear behavior,

as well as restriction and sequence data of ribosomal DNA.

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text  Citing References

ACCESSION NUMBER: 2001:775312 HCAPLUS
DOCUMENT NUMBER: 136:50708
TITLE: Mating-type genes for **basidiomycete** strain improvement in mushroom farming
AUTHOR(S): Kothe, E.
CORPORATE SOURCE: Friedrich-Schiller-Universitat Jena, Biologisch-Pharmazeutische Fakultat, Institut fur Mikrobiologie, Mikrobielle Phytopathologie, Jena, 07745, Germany
SOURCE: Applied Microbiology and Biotechnology (2001), 56(5-6), 602-612
CODEN: AMBIDG; ISSN: 0175-7598
PUBLISHER: Springer-Verlag
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review. Mushroom prodn. is dependent on the quality of the spawn used to inoculate the cultures. In order to produce high-quality spawn, breeding programs for strains resistant to certain **diseases** and able to form high-quality fruit bodies under std. growth conditions are necessary. The investigation of the mol. basis for mating provides access to the use of mating-type genes in order to facilitate breeding. For research purposes, two mushroom-forming homobasidiomycetes have been used due to their easy cultivation and sexual propagation on defined minimal media: *Schizophyllum commune* and *Coprinus cinereus*. The mating-type genes control formation of the dikaryon from two haploid strains. Only the dikaryon is fertile and able to form mushrooms under the right environmental conditions. These genes are now used in mating-type-assisted breeding programs for economically important mushrooms, esp. the white button mushroom, *Agaricus bisporus*, and the oyster mushroom, *Pleurotus ostreatus*, aiming at high-yield and high-quality std. mushroom prodn. Most mushroom species posses two mating-type loci that control their breeding. The genes encoded in the A loci lead to the formation of transcription factors that belong to the class of homeodomain proteins. Active transcription factors are formed by heterodimerization of two proteins of different allelic specificities. In nature, this is only the case if two cells of different mating type have fused to combine the different proteins in one cytoplasm. While fusion in homobasidiomycetes is found irresp. of mating type, exchange of nuclei between mating mycelia is dependent on the products of the B mating-type loci. The B genes form a pheromone and receptor system that enables the fungi to initiate nuclear migration. The mol. details of the two genetic systems controlling breeding in **basidiomycetes** are presented in this review.

REFERENCE COUNT: 113 THERE ARE 113 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text  Citing References

ACCESSION NUMBER: 2000:715073 HCAPLUS
DOCUMENT NUMBER: 134:37994
TITLE: Carcinogenic effects of ptaquiloside in bracken fern

and related compounds

AUTHOR(S): Potter, D. M.; Baird, M. S.

CORPORATE SOURCE: Menai Organics Ltd, Gwynedd, LL57 2UP, UK

SOURCE: British Journal of Cancer (2000), 83(7), 914-920

CODEN: BJCAAI; ISSN: 0007-0920

PUBLISHER: Harcourt Publishers Ltd.

DOCUMENT TYPE: Journal; **General Review**

LANGUAGE: English

AB A review with many refs. Consumption of the bracken fern *Pteridium aquilinum* by cattle has been shown to induce bladder and intestinal carcinomas in cattle and to cause a no. of **diseases** in other farm animals. An unstable glucoside named ptaquiloside, contg. a reactive cyclopropane ring, has been isolated from the fern and its potent carcinogenicity proven. Nineteen of 31 ferns tested by chemotaxonomic methods in Japan have been found to contain potentially carcinogenic ptaquilosides as have *Cheilanthes sieberi* and *Pteridium esculentum*. Hydrolysis of ptaquilosides leads to pterosins; under milder conditions a dienone which is believed to be the primary carcinogen is obtained. Hypacrone, a sesquiterpene contg. a reactive cyclopropane ring, has been isolated from *Hypolepis punctata* and its structure proved by synthesis. Illudins, structurally similar to ptaquiloside, have been isolated from the **basidiomycete** *Omphalotus illudens*. These give anti-tumor activity and similar reactivity with nucleophiles to ptaquiloside. Compd. CC-1065, a highly toxic antibiotic also contg. a cyclopropane ring, has been isolated from *Streptomyces zelensis*. The mechanism of its reactivity with DNA has been compared to that of ptaquiloside and the small structural differences between carcinogenic and anti-tumor activity discussed. Both CC-1065 and adozelesin, a synthetic analog with anti-tumor activity, have been shown to alkylate the N-3 atom of adenine in a certain sequence of DNA. The reactivity of cysteine with ptaquilosides and illudins is discussed, as is the role of cysteine alkylating agents in apoptosis.

REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Other References
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ACCESSION NUMBER: 2000:432381 HCAPLUS

DOCUMENT NUMBER: 133:205132

TITLE: Molecular aspects of the sugarcane smut **disease** pathogen, *Ustilago scitaminea*

AUTHOR(S): Schenck, Susan

CORPORATE SOURCE: Hawaii Agricultural Research Center, Aiea, HI, USA

SOURCE: Sugarcane Pathology (1999), Volume 1, 131-139.

Editor(s): Rao, Govind P. Science Publishers, Inc.:
Enfield, N. H.

CODEN: 69ABB7

DOCUMENT TYPE: Conference; **General Review**

LANGUAGE: English

AB A review with 28 refs. Smut is a serious sugarcane **disease** in Hawaii and is caused by the **basidiomycete** fungus, *Ustilago scitaminea*. The fungus is spread from plant to plant by airborne teliospores. The spores are diploid and germinate to produce haploid sporidia that can continue to multiply saprophytically by budding in a yeast-like manner. These sporidia are of "plus" or "minus" mating type and, in order to produce the pathogenic dikaryon mycelium, sporidia of opposite mating types must fuse. In this respect, *U. scitaminea* is like many other *Ustilago* species that infect other host plants. The genetics of *U. maydis* and *U. hardei* have been extensively studied and the nucleic acid sequences of some of the known mating type genes have been recorded. Using primers of a *U. maydis*

gene, a homologous DNA sequence was amplified from *U. scitaminea* by means of polymerase chain reaction. It is therefore likely that *U. scitaminea* has a similar mechanism of mating and dikaryon formation. It has also been shown that interspecies crosses of sporidia of *U. scitaminea* and other *Ustilago* species are partially compatible. The gene products and their probable roles in *Ustilago* mating and pathogenicity are now quite well understood. In addn., the DNA primers were employed in the development of a diagnostic technique for identification of systemic infections of sugarcane smut in which observable symptoms have not yet appeared.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 1999:504923 HCAPLUS
DOCUMENT NUMBER: 132:20826
TITLE: Medicinal properties of substances occurring in higher **basidiomycetes** mushrooms: current perspectives (review)
AUTHOR(S): Wasser, Solomon P.; Weis, Alexander L.
CORPORATE SOURCE: International Centre for Cryptogamic Plants and Fungi, Institute of, University of Haifa, Haifa, 31905, Israel
SOURCE: International Journal of Medicinal Mushrooms (1999), 1(1), 31-62
CODEN: IMMUFJ; ISSN: 1521-9437
PUBLISHER: Begell House, Inc.
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with many refs. highlights some of the recently isolated and identified substances of higher **Basidiomycetes** mushroom origin that express promising antitumor, immune modulating, cardiovascular and antihypercholesterolemia, antiviral, antibacterial, antiparasitic, hepatoprotective, and antidiabetic effects. Medicinal mushrooms have a long history of use in folk medicine. Mushrooms useful against cancers of the stomach, esophagus, lungs, etc., are known in China, Russia, Japan, and Korea, as well as the United States and Canada. There are approx. two hundred species of mushrooms that have been found to markedly inhibit the growth of different kinds of tumors. However, most of the mushroom origin antitumor substances have not been clearly defined. Several antitumor polysaccharides, such as hetero- β -glucans and their protein complexes (e.g., xyloglucans, and acidic β -glucan contg. uronic acid), as well as dietary fibers, lectins, and terpenoids, have been isolated from medicinal mushrooms. In Japan, Russia, China, and the United States, several different polysaccharide antitumor agents have been developed from the fruiting body, mycelia, and culture medium of various medicinal mushrooms (*Lentinus edodes*, *Ganoderma lucidum*, *Schizophyllum commune*, *Trametes versicolor*, *Inonotus obliquus*, and *Flammulina velutipes*). Both cellular components and secondary metabolites of a large no. of mushrooms have been shown to effect the immune system of the host and therefore could be used to treat a variety of **disease** states. The information presented in this review is helpful in exploring and understanding the rich traditions of medicinal mushrooms in Eastern and Western cultures and medicine.

REFERENCE COUNT: 259 THERE ARE 259 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Serials References
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ACCESSION NUMBER: 1995:423977 HCAPLUS
 DOCUMENT NUMBER: 122:180894
 TITLE: Phenylpyrroles, nature and IPM as guidance
 AUTHOR(S): Van Der Maarel, H.
 CORPORATE SOURCE: Business Unit Seed Treatment, Ciba Plant Protection, Basel, Switz.
 SOURCE: Agro-Food-Industry Hi-Tech (1994), 5(1), 25-7
 CODEN: AIHTEI; ISSN: 1120-6012
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: English

AB A review with 14 refs. on phenylpyrroles as a new class of non-systemic fungicides, which are closely related to the natural antimycotic pyrrolnitrin. The mode of action of the phenylpyrroles may be related to membrane dependent transport processes, a mechanism which has not been described before for any fungicide. They are being developed for seed treatment use, an IPM compatible approach, for both cereal and non-cereal crops. The phenylpyrroles provide a high-level, broad spectrum of activity at low rates against a wide range of seed- and soil-borne **diseases** caused by Ascomycetes, Deuteromycetes and **Basidiomycetes**. Fenpiclonil has been marketed since 1988, and fludioxonil received its 1st registration in France in July, 1993.

L21 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text	Serials References
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ACCESSION NUMBER: 1981:438702 HCAPLUS
 DOCUMENT NUMBER: 95:38702
 TITLE: Modern aspects of the study of phytopathogens and higher fungi
 AUTHOR(S): Darozhkin, M. A.; Serzhanina, G. I.
 CORPORATE SOURCE: USSR
 SOURCE: Vestsi Akademii Navuk BSSR, Seryya Biyalagichnykh Navuk (1981), (2), 50-5
 CODEN: VABBA3; ISSN: 0002-3558
 DOCUMENT TYPE: Journal; **General Review**
 LANGUAGE: Belorussian

AB A review with 12 refs. on mycocenol. characteristics of fungi inducing **diseases** in conifers and cultivated field crops, **Basidiomycetes**, and Discomycetes.

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